

POTENT ABSTRACTS OF JAPAN

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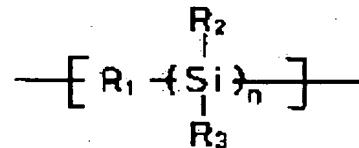
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(54) FULLERENE-ORGANOSILANE COPOLYMER

(57)Abstract:

PURPOSE: To allow patterning with fullerene's optical functions by producing the title compound, soluble in THF, processable into films, and having the structure of a copolymer of a fullerene and a specific organosilane compound, the optical functions being exhibited by photosensitivity of the film.

CONSTITUTION: A fullerene, such as C60 or C70, and an alkali metal are treated with ultrasonic waves after being dispersed in tetrahydrofuran to be mixed with each other, or treated by constant-potential electrolysis with an electrolyte and platinum electrodes, the electrolyte consisting of methylene chloride as the supporting salt, (C4H9)4NPF6 as the solvent and fullerene, to produce a fullerene anion. A divalent fullerene is preferable. The most preferable fullerene to alkali ratio is 1/2 mol/mol for the former method, and the most preferable potential for the latter method is intermediate between the divalent and trivalent redox potentials. This solution is polymerized with a dihaloorganosilane compound added dropwise, which compound has hydrocarbon groups directly bonded to Si and an Si to hydrocarbon ratio of 1/2, to produce a fullerene-organosilane copolymer represented by the formula wherein R1 represents a fullerene group; R2 and R3 represent each a hydrocarbon group; and n is preferably 1 to 20.



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